

CLAIMS

We claim:

1. A supply interface unit for use in a DC power pooling system, the DC power pooling system comprising a plurality of DC electrical power consuming and providing entities, each of the DC electrical power consuming and providing entities having at least a first operative mode in which it may provide more electrical power than it consumes and a second operative mode in which it may consume more electrical power than it provides, and at least one pooling controller, the supply interface unit comprising:
 - a first port and a second port;
 - a controller;
 - at least one controllable switch, operable by said controller to enable current flow from one of said first port to said second port and said second port to said first port; and
 - at least one adjustable current limiter, operable by said controller to limit said current flow.
2. A supply interface unit according to claim 1, further comprising a current sensor, said current sensor sensing at least one of amount and direction of said current flow.
3. A supply interface unit according to claim 2, wherein said controller communicates information relating to said sensed at least one of amount and direction of said current flow to the at least one pooling controller.
4. A supply interface unit according to claim 1, further comprising a voltage sensor.
5. A supply interface unit according to claim 4, wherein said controller communicates information regarding the output of said voltage sensor to the at least one pooling controller.

6. A supply interface unit according to claim 1, wherein said controller is operable to be in data communication with the at least one pooling controller.
7. A supply interface unit according to claim 1, wherein said controller is further operable by at least one pooling controller to control direction of said current flow.
8. A supply interface unit according to claim 7, further comprising a current sensor, said current sensor sensing at least one of amount and direction of said current flow and wherein said controller communicates information relation to said sensed at least one of amount and direction of said current flow to the at least one pooling controller.
9. A supply interface unit according to claim 8, wherein said adjustable current limiter is operable by said controller in response to the at least one pooling controller to limit said current flow to a specified amount, said specified amount being supplied by said at least one pooling controller to said controller.
10. A supply interface unit according to claim 1, further comprising overcurrent protection, said overcurrent protection comprising at least one of a fuse and a circuit breaker.
11. A method of directing and controlling current flow in a DC power pooling system, the DC power pooling system comprising a plurality of DC electrical power consuming and providing entities, each of the DC electrical power consuming and providing entities having at least a first operative mode in which it may provide more electrical power than it consumes and a second operative mode in which it may consume more electrical power than it provides, and at least one pooling controller, the method of directing and controlling current flow comprising:
- supplying a first port and a second port;

switching the direction of current flow alternatively to one of said first port to said second port and said second port to said first port; and
adjustably limiting said current flow.

5 12. A method of directing and controlling current flow according to claim 11,
further comprising:

sensing at least one of amount and direction of said current flow.

10 13. A method of directing and controlling current flow according to claim 12,
further comprising:

communicating information regarding said sensed at least one of amount and direction of said current flow to the at least one pooling controller.

15 14. A method of directing and controlling current flow according to claim 11,
further comprising:

sensing the voltage of at least one of said first port and said second port.

20 15. A method of directing and controlling current flow according to claim 14,
further comprising:

communicating information regarding said sensed voltage to the at least one pooling controller.

25 16. A method of directing and controlling current flow according to claim 11,
wherein said switching is accomplished in response to an output of the at least one pooling controller.

30 17. A method of directing and controlling current flow according to claim 16,
wherein said adjustably limiting is accomplished in response to an output of the at least one pooling controller.

18. A method of directing and controlling current flow according to claim 17,
further comprising:

sensing at least one of amount and direction of said current flow;
communicating information regarding said sensed at least one of
5 amount and direction of said current flow to the at least one pooling controller.

19. A method of directing and controlling current flow according to claim 11,
wherein said limiting comprises:

adjustably limiting said current flow to a specified amount in
10 response to an output of the at least one pooling controller,
said output of the at least one pooling controller comprising
information regarding said specified amount.

20. A method of directing and controlling current flow according to claim 11,
15 further comprising:

protecting against excess current flow.